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	ENFIELD & SACKS, PC	GORDON, BRIAN R			
FEDERAL RESERVE PLAZA 600 ATLANTIC AVENUE			ART UNIT	PAPER NUMBER	]
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Please find below and/or attached an Office communication concerning this application or proceeding.

•		Application No.	Applicant(s)				
•							
	Office Action Summany	09/865,404	HAMEL ET AL.				
Office Action Summary		Examiner	Art Unit				
	The MAILING DATE of this assumption is a firm	Brian R. Gordon	1743				
The MAILING DATE of this communication appears on the cover sheet with the c rrespondence address Period for Reply							
A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.  - Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).  - Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).  Status							
_	esponsive to communication(s) filed on 02 D	ecember 2002 .					
		s action is non-final.					
3)□ S	<u>-</u>						
Disposition of Claims							
4) Claim(s) 2-60 is/are pending in the application.							
4a) Of the above claim(s) 13-38 and 42-60 is/are withdrawn from consideration.							
5) Claim(s) is/are allowed.							
6)⊠ Claim(s) <u>2, 4-12 and 39</u> is/are rejected.							
7)⊠ Cl	aim(s) <u>3,40 and 41</u> is/are objected to.						
	aim(s) are subject to restriction and/or	election requirement.					
Application	•						
9) The specification is objected to by the Examiner.							
10) The drawing(s) filed on is/are: a) accepted or b) objected to by the Examiner.							
	pplicant may not request that any objection to the	- · ·					
11) The proposed drawing correction filed on is: a) approved b) disapproved by the Examiner.  If approved, corrected drawings are required in reply to this Office action.							
12) ☐ The oath or declaration is objected to by the Examiner.							
Priority under 35 U.S.C. §§ 119 and 120							
13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).							
a) ☐ All b) ☐ Some * c) ☐ None of:							
1.☐ Certified copies of the priority documents have been received.							
2.[	2. Certified copies of the priority documents have been received in Application No						
Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.							
14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).							
a) The translation of the foreign language provisional application has been received.  15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.							
Attachment(s)							
1) Notice of 2) Notice of	References Cited (PTO-892)  Draftsperson's Patent Drawing Review (PTO-948)  on Disclosure Statement(s) (PTO-1449) Paper No(s) 6.8	5) Notice of Informal P	(PTO-413) Paper No(s) latent Application (PTO-152)				

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#### **DETAILED ACTION**

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#### Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- Claims 13-38, drawn to a liquid transfer device, classified in class 422, subclass 864.17.
- II. Claims 39-41 and 2-12, drawn to a liquid dispenser, classified in class 73, subclass 864.17.
- III. Claims 42-47, drawn to an apparatus for pipetting liquid from a source of liquid to wells disposed in plates, classified in class 422, subclass 63.
- IV. Claims 48-60, drawn to a method for transferring liquid from a first set of plates having multiple wells to a second set of plates having multiple wells, classified in class 436, subclass 180.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and (II and III) are related as combination and subcombination.

Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the combination of Group I does not require the particulars of the subcombination of Groups II and III such as the stackers for accepting and storing plates. The subcombination has

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separate utility such as such as transferring a stack of plates from a first stacker to a second stacker.

- 3. Inventions IV and (I and III) are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the process claimed can be practiced by another materially different apparatus from that claimed in Groups I and III for the method requires the use of a device the comprises a number of stackers (four) and plates.
- 4. Inventions III and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the combination of Group III does not require the particulars of the subcombination of Group II such as the second stacker, assembly carrying a carriage, plate lifter, and first and second motors. The subcombination has separate utility such as transferring a stack of plates from a first stacker to a second stacker.
- 5. Inventions II and IV are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as

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claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the method may be practiced by another materially different apparatus for the apparatus of Group II does not provide means from transporting the plates to and from the dispensing head and the four stackers.

- 6. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
- 7. Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Groups I, and III-IV, restriction for examination purposes as indicated is proper.
- 8. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.
- 9. During a telephone conversation with Lawrence M. Green on September 12, 2003 a provisional election was made without traverse to prosecute the invention of Group II, claims 39-41 and 2-12. Affirmation of this election must be made by applicant in replying to this Office action. Claims 13-38 and 42-60 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.
- Applicant is reminded that upon the cancellation of claims to a non-elected 10. invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one

or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

#### Specification

11. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

#### Claim Rejections - 35 USC § 112

- 12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

  The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
- 13. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
- 14. Claim 5 recites the limitation "all of the space" in line 2. There is insufficient antecedent basis for this limitation in the claim.

### Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

16. Claims 2, 10, and 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Yahiro US 6,182,719.

Yahiro discloses a distribution apparatus for distributing liquid samples using distribution tips, which distribution tips are held in a tip rack placed in a feeder section and fitted relative to a distribution head. The distribution apparatus has a fitting stage, provided in a space between the feeder section and a distribution stage, for supporting the tip rack and fitting the distribution tips. A distribution tip alignment device is provided in the fitting stage, which aligns dislocated distribution tips at the bottom ends to a correct formation by making contact with the side wall surfaces of the distribution tips. The tip ends of the distribution tips, which are attached to nozzles of the distribution head, are aligned by the distribution tip alignment device at a certain specific pitch, at the time when the distribution tips are attached to the nozzles, or after they are attached to the nozzles. By so doing, a liquid sample can be distributed to small diameter wells without having a dislocation problem.

A transfer table 31 is horizontally supported by pillars 30 standing on the base plate 2. A Z axis table 33 is provided on the transfer table 31 and is equipped with a Z axis motor 34. A distribution head 20 (dispensing head) is installed on the Z axis table 33 (means for retaining dispensing head). The distribution head 20 can move horizontally by operation of the motor 32 on the transfer table 31 such that a range of the movement covers the fitting stage 6, the distribution stage 3 and a discard box 36 provided at a side of the machine bed 1. The distribution head 20 moves vertically by

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operation of the Z axis motor 34 on the regions of fitting stage 6 and distribution stage 3.

The distribution head 20 is described with reference to FIG. 2. As shown in FIG. 2, an "L" shaped block 21 is engaged via a plate 35 with the Z axis table 33 (housing). The "L" shaped block 21 is provided with a pair of guide rails 23 vertically disposed on the vertical surface 21a. A slider 24 (slideways) that is freely slidable with respect to the guide rail 23 is connected with a block 25. The block 25 is equipped with a plurality of plungers 26 arranged in a lattice form. The plungers 26 (plurality of pistons in plurality of chambers) are engaged with a plurality of nozzles 27, which have been provided in a horizontal plane 21b of the "L" shaped block 21 with the same arrangement as that of the plunger 26.

17. Claims 2, 10, and 39 are rejected under 35 U.S.C. 102(e) as being anticipated Bevirt et al. US 6,399,024.

Bevirt et al. disclose multichannel pipette heads and autopipettors for loading, measuring, transporting and dispensing, particularly from one micro-plate to another. An exemplary multichannel pipette head comprises a pump housing, pistons, a drive plate, an aspiration drive and bearing rails, wherein the pump housing comprises chambers adapted to receive the pistons, the pistons each comprise a shaft, the drive plate retains the pistons and translocates the piston shafts through chambers, the aspiration drive translocates the drive plate along the bearing rails which pass through the drive plate and attach to the pump housing.

Referring to the Figures, FIG. 1 shows a pipette head 10 comprising a pump housing 11 and a drive plate 12 which translocates pistons 13 through chambers (not

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visible) of the pump housing 11. The drive plate 12 is translocated by an on-board aspiration drive (mostly obscured by proximal bearing rail) along bearing rails 14 that pass through the drive plate 12 and attach to the pump housing 11 and a head coupling assembly 15. Protruding from the top surface of the housing are collars 16 of suspended and spring loaded stripper plate columns (not shown). Protruding from the bottom surface of the housing and covered by pipette tips 17 are distal ends (obscured by pipette tips) of nipples (not visible) retained in the chambers (not visible). Affixed to the head is a bar code reader 18. Also shown is a latch 19 for releasing a mechanical coupling (not visible) which joins the head 10 to an autopipettor (housing comprising slideways; not shown).

FIG. 2 provides a different view of the pipette head 10, showing the coupling assembly 15 which joins the head 10 to an autopipettor (not shown). The coupling assembly 15 comprises to suspension brackets 21 and an electronic connector 22 for mechanically and electronically attaching the head 10 to an autopipettor (not shown).

Although the autopipettor is not shown it is clear that in order for the mechanical coupling and the electrical connecter to engage the autopipettor that the dispense head is slid into a slot, opening, or other means.

## Claim Rejections - 35 USC § 103

- 18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
  - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

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19. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

- 1. Determining the scope and contents of the prior art.
- 2. Ascertaining the differences between the prior art and the claims at issue.
- 3. Resolving the level of ordinary skill in the pertinent art.
- 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
- 20. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
- 21. Claim 4-6 rejected under 35 U.S.C. 103(a) as being unpatentable over Bevirt et al. as applied to claims 2, 10, and 39 above, and further in view of Meltzer US 5,306,510.

Bevirt et al. does not disclose that the device comprises flexible seals for the tips.

Meltzer discloses an automated pipetting system comprising interchangeable tip holders of improved double o-ring design.

The lower ends 35 of the Z-axis racks are threaded for screwing into tip holders 36 shown FIGS. 6-8. Threaded end 35 is screwed into receptacle end 36a of tip holder

36, thereby clamping a teflon top hat 37 and O-ring 38 at its lower portion so as to act as a fluid seal. Passage 36b of tip holder 36 communicates with tubing 32 which is pressed over top hat 37 and passes through hollow rack 27, through tubing guide 80 and exits on side of the frame for connection to external pumps. Lower end of tip holder 36 has a slight taper so that the tip 36 can be smoothly inserted into the similarly tapered upper mouth Y of a disposable tip 39. Shoulder (contact surface) 36c is provided for abutting contrast against the upper face (shoulder) of tip 39 (FIG. 8), so that it is positively positioned and held on tip holder 36. A pair of O-rings 36e are held in the grooves 36f formed on the tapered portion 36c of tip holder 36 so as to provide an air tight seal between tip 39 and tip holder 36 and a friction surface for retaining tip 39 on the tip holder 36 (Figure 8).

As to the the o-ring comprising silicon, it is well known in the art that o-rings, washers, and other sealing means are manufactured from silicon rubber when employed for establishing leak proof connections between devices used for transporting fluids.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Bivert et al. to incorporate the o-ring assembly as taught by Meltzer for improved sealing between the disposable tips and the nozzles.

22. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bivert et al. in view of Meltzer as applied to claims 4-6 above, and further in view of Maeda.

Bivert et al. in vew of Meltzer does not disclose a clamping means and urging means as claimed by applicant.

However Maeda discloses a dispensing head which is movable upward and downward as a whole and comprises a plurality of plungers supported by a plunger plate, drive means for moving the plunger plate upward and downward, a plurality of cylinders in which the plungers slidably fit, and a plurality of nozzles arranged at the lower ends of the cylinders and having configurations adapted to engage airtightly with holes for holding specific dispensing tips, the plurality of nozzles being supported by a single nozzle holder, which is built to be detachable from said dispensing head.

According to the invention, only the nozzle holder that support nozzles has to be replaced with another holder conforming to dispensing tips of different dimensions. The arrangement facilitates the replacement and make the dispenser available at lower cost.

FIGS. 7 and 8, in addition to FIGS. 4 to 6. Under the cylinder block 67, there is located a nozzle holder 97 which has a number of holes supporting an array of (small) nozzles 99 or (large) nozzles 101, preferably fitting loosely, in an arrangement corresponding to the cylinders. Loosely received in the holes, the nozzles have allowances to move slightly for a proper airtight fit when their ends are engaged with the upper end openings of tips. In the absence of the allowances, some of the many tips could fail to fit properly and be left unengaged in the rack 9 (FIGS. 3 and 9). The nozzles 99 or 101 have an annular extended head each with which to be fitted in the holes of the nozzle holder 97. The nozzle holder 97 is urged by clamps 104 at the lower

ends of clamp plates 103 against the bottom of the cylinder block 67, whereby the upper ends of the nozzles are forced in contact with the lower ends of the cylinders 23.

Preferably, an elastic plate such as silicone plate 109 is sandwiched between the nozzle holder 97 and the bottom of the cylinder block 67 to establish airtight communication between the cylinders 23 and the nozzles 99 or 101.

Each clamp plate 103 is supported by the vertical bracket 65 which in turn is held by the horizontal bracket 77, in such manner that the clamp plate can slide vertically along the outer surface of the bracket. A pair of clamp plate guides 105 are fixed to the cylinder block 67 (FIG. 6), and the clamp plate 103 is formed with slots 111 in which the guides 105 fit. A plurality of tension springs 113 are secured at the upper ends to the bracket 65, and the lower ends of the springs 113 are secured to the upper end of the clamp plate 103. As a consequence, the clamp plate 103 is normally biased upward, forcing the nozzle holder 97 against the cylinder block 67 with the aid of the clamps 104 to provide desired airtight communication between the cylinders 23 and nozzles 99 or 101. The strength of the springs 113 can be controlled by adjusting the positions of screws 115.

In conjunction with FIGS. 4 to 6, means for removing the nozzle holder 97 when required will now be explained. Release pins 117 are fixed to each clamp plate 103 and extend through slots formed in the bracket 65 to the inside. As it descends, the plunger plate 91 comes into contact with the release pins 117 and then forces them farther downward against the urgings of the springs 113, and accordingly the clamp plate 103 comes down to release the nozzle holder 97. Thus the nozzle holder 97 descends

under its own weight until it rests on holding bends 108 of holder supports 107 secured to the cylinder block 75. In this state the nozzle holder 97 can be horizontally pulled out together with the nozzles 99. This state also allows the nozzle holder to be replaced with another holder of different dimensions.

It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the modified device of Bivert et al. to incorporate the clamping and urging means as taught by Maeda in order to allow for the dispense head to be replaced with another head of different dimensions.

23. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bivert et al. claims 2, 10, and 39 above, and further in view of Maeda.

Bivert et al. do not disclose a clamping means and urging means as claimed by applicant.

However Maeda discloses a dispensing head which is movable upward and downward as a whole and comprises a plurality of plungers supported by a plunger plate, drive means for moving the plunger plate upward and downward, a plurality of cylinders in which the plungers slidably fit, and a plurality of nozzles arranged at the lower ends of the cylinders and having configurations adapted to engage airtightly with holes for holding specific dispensing tips, the plurality of nozzles being supported by a single nozzle holder, which is built to be detachable from said dispensing head.

According to the invention, only the nozzle holder that support nozzles has to be replaced with another holder conforming to dispensing tips of different dimensions. The arrangement facilitates the replacement and make the dispenser available at lower cost.

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FIGS. 7 and 8, in addition to FIGS. 4 to 6. Under the cylinder block 67, there is located a nozzle holder 97 which has a number of holes supporting an array of (small) nozzles 99 or (large) nozzles 101, preferably fitting loosely, in an arrangement corresponding to the cylinders. Loosely received in the holes, the nozzles have allowances to move slightly for a proper airtight fit when their ends are engaged with the upper end openings of tips. In the absence of the allowances, some of the many tips could fail to fit properly and be left unengaged in the rack 9 (FIGS. 3 and 9). The nozzles 99 or 101 have an annular extended head each with which to be fitted in the holes of the nozzle holder 97. The nozzle holder 97 is urged by clamps 104 at the lower ends of clamp plates 103 against the bottom of the cylinder block 67, whereby the upper ends of the nozzles are forced in contact with the lower ends of the cylinders 23.

Preferably, an elastic plate such as silicone plate 109 is sandwiched between the nozzle holder 97 and the bottom of the cylinder block 67 to establish airtight communication between the cylinders 23 and the nozzles 99 or 101.

Each clamp plate 103 is supported by the vertical bracket 65 which in turn is held by the horizontal bracket 77, in such manner that the clamp plate can slide vertically along the outer surface of the bracket. A pair of clamp plate guides 105 are fixed to the cylinder block 67 (FIG. 6), and the clamp plate 103 is formed with slots 111 in which the guides 105 fit. A plurality of tension springs 113 are secured at the upper ends to the bracket 65, and the lower ends of the springs 113 are secured to the upper end of the clamp plate 103. As a consequence, the clamp plate 103 is normally biased upward, forcing the nozzle holder 97 against the cylinder block 67 with the aid of the clamps 104

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to provide desired airtight communication between the cylinders 23 and nozzles 99 or 101. The strength of the springs 113 can be controlled by adjusting the positions of screws 115.

In conjunction with FIGS. 4 to 6, means for removing the nozzle holder 97 when required will now be explained. Release pins 117 are fixed to each clamp plate 103 and extend through slots formed in the bracket 65 to the inside. As it descends, the plunger plate 91 comes into contact with the release pins 117 and then forces them farther downward against the urgings of the springs 113, and accordingly the clamp plate 103 comes down to release the nozzle holder 97. Thus the nozzle holder 97 descends under its own weight until it rests on holding bends 108 of holder supports 107 secured to the cylinder block 75. In this state the nozzle holder 97 can be horizontally pulled out together with the nozzles 99. This state also allows the nozzle holder to be replaced with another holder of different dimensions.

It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the device of Bivert et al. to incorporate the clamping and urging means as taught by Maeda in order to allow for the dispense head to be replaced with another head of different dimensions.

### Allowable Subject Matter

24. Claims 3 and 40-41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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securing said dispensing head to the plate.

25. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not teach nor fairly suggest a device the comprises a retaining means comprising a plurality of threaded shafts mounted to the dispensing head; a plate disposed within the housing; cutouts on the plate for receiving the threaded shafts; and a knob threadably mounted on each threaded shaft, said knobs being rotatable about the shaft to be screwed into engagement with said plate for

#### Conclusion

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Friswell et al. disclose a liquid handling system with automatically interchangeable cannula arrays.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian R. Gordon whose telephone number is (703) 305-0399. The examiner can normally be reached on M-F, with 2nd and 4th F off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 703-308-4037. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

/ Jill Warden
Supervisory Patent Examiner
Technology Center 1700

brg

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